Governor Tomblin’s

ENERGY Summit

West Virginia: Meeting America’s Energy Challenges
An agency with multiple personality disorder – developing and commercializing nuclear energy – building and maintaining the nuclear arsenal – coordinating Federal energy policy and programs.

Starting under Clinton the Renewable and Energy Efficiency Office slowing took over all energy functions. Their mission “Market Transformation”.

Why should you care?
Energy Policy Chaos

All of the Above

Carter

Bush 1

Clinton

Bush 2

Obama

CTL R&D  Clean Coal  IGCC  FutureGen

Directional Drilling – 4D Seismic – Tight Sands

None of the Below
New Clean Air Act Interpretation Impacts

Reported Coal-fired generator retirements, 2012 - 2016

1 megawatts

800 megawatts
Increased Cost of Production Impacts

By Location

East of the Mississippi

West of the Mississippi

Million Short Tons

The Real Impact

- **In 2009, the Obama administration** tightened water-pollution regulations for mountaintop-removal coal mines.

- Reagan: 41.1 thousand
- G.H.W. Bush: 38 thousand
- Clinton: 24.1 thousand
- G.W. Bush: 16.9 thousand
- Obama: 5 thousand

- Year: 1983 to 2012
Now What?
The World Still Wants Coal

In 2030, more than 3.3 billion people will depend upon coal for more than 50% of their electric power.

- **2005**
  - Coal: 41%
  - Other fuel: 59%

- **2030**
  - Coal: 44%
  - Other fuel: 56%
Despite Propaganda to the Contrary...Coal is Here to Stay.
But Maximizing Value Will Help More

1 ton CAPP Coal combusted to form steam
= 2,000 kilowatt hours of electricity
  $0.1252/kWh = $250.40

1 ton CAPP Coal gasified to form syngas
= 10.6 million cubic feet syngas per hour
  $2.00 (boiler fuel) =$400.00
  = 675 gal Methanol
    $1.20/gal = $810.00
  = 8 barrels of refined product (336 gallons)
    $2.80/gal = $940.80

Business Focus
>>> Leverage on engineering and development expertise to focus on the design, construction and operation of energy production solutions.

Industry Focus
>>> Chemical & Petrochemical
>>> Power generation
>>> Oil & Gas

Market Focus
>>> Primary market: United States
>>> Secondary market: Eastern Europe, Southwest Asia, and South America
TransGas — Project Team

TransGas
Development Systems

Adams Fork Energy

ACS
Linde
Uhde
ThyssenKrupp
PIKE

ExxonMobil
Research & Engineering

ASP Energy Services
Haldor Topsoe

Industrial Contractors
SKANSKA

Potomac Energy Fund

SPILMAN THOMAS & BATTLE, PLLC

SAIC

POTESTA

ROBINSON & McELWEE PLLC

State of West Virginia

Mingo County Redevelopment Authority

Commonwealth of Kentucky

Pike County Commission, Convention & Visitors Bureau

TransGas
Development Systems
Coal to Liquids via Methanol

Coal → Gasification → CO-Shift → Acid Gas Removal → Methanol Synthesis → MTG Reactors → Fractionation → Gasoline Blending → Gasoline

MTG Island:
- Fuel Gas
- LPG
- Hvy. Gasoline

MTG essentially un-coupled with intermediate storage tank
MTG operates on liquid feedstock (methanol)
Principal Product

MTG – Finished gasoline

light gasoline
approx. 85%
treated
heavy gasoline
approx. 15%

Guaranteed Gasoline Quality

- density (15.6° C) 733 kg/m³
- durene content: < 1.50 wt%
- RON: min. 92
- RVP: 0.60 bara
- benzene content: 0.3 – 0.5 wt%
- aromatics content: 26 - 30 vol%
- Sulfur Nil
- Lead Nil

New Zealand 16 yrs @ 18,800 bl/da

China upgrading 2,500 bl/da to 28,000 bbl/da

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Permits Done
Construction began
Detailed engineering is progressing
Contracts for coal are in the final stages
Contracts to build and operate in negotiation
Off-Take Agreements ready to proceed

So what’s the hold up?

Uncertainty generated by the ever changing direction of Federal agencies makes US investors nervous.

Interestingly, foreign investors see the value and want to invest in US coal projects.
What to Do? Focus on Increased Value

- abrasives
- aspirin
- baking powder
- batteries
- chalk
- concrete
- cosmetics
- fertilizer
- golf balls
- insulation
- linoleum
- mothballs

- paint
- paper clips
- perfumes
- pens
- plastic
- poster board
- rubber bands
- shampoo
- shingles
- sugar substitute
- trays